The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A device for focusing a charged solute comprising:

a first chamber for receiving a fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber; and

a porous material separating the first and second chambers.

2. The device of Claim 1 wherein the first and second chambers are in liquid communication when the chambers are filled with liquid.

3. The device of Claim 1 wherein the first chamber is in electrical communication with the electrode array when the chambers are filled with a conductive liquid.

4. The device of Claim 1 wherein the electrode array comprises a plurality of electrodes arranged linearly along the chamber length.

5. The device of Claim 4 wherein each electrode is individually controlled.

6. The device of Claim 4 wherein the electrodes are pin-shaped.

7. The device of Claim 4 wherein the electrodes are staple-shaped.

8. The device of Claim 1 wherein the electrode array generates an electric field gradient profile.

9. The device of Claim 8 wherein the electric field gradient profile can be dynamically controlled.

10. The device of Claim 1 wherein the electrode array comprises an electrode array positioned on a surface of the second chamber opposing the porous material.

11. The device of Claim 1 wherein the electrode array comprises a first electrode array and a second electrode array, the first and second arrays positioned on opposing surfaces of the second chamber adjacent the porous material.

12. The device of Claim 1 wherein the fluid medium comprises a chromatography support material.

13. The device of Claim 1 wherein fluid medium comprises a fluid selected from the group consisting of a simple fluid, a complex fluid, and a polymer solution.

14. The device of Claim 1 wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.

15. The device of Claim 1 wherein the charged solute comprises an uncharged material sorbed into a charged carrier.

16. The device of Claim 1 wherein the second chamber further comprises an electrode pair, wherein the electrodes of the pair are positioned adjacent opposing ends of the electrode array.

17. The device of Claim 1 further comprising a first conduit for introducing fluid media into the first chamber and a second conduit for exiting fluid media from the first chamber.

18. A device for focusing a charged solute comprising:

a first block having a first trough machined therein for receiving a fluid medium, the first trough having an inlet for introducing a first liquid to the trough and an outlet for exiting the first liquid from the trough;

a second block having a second trough machined therein, wherein the second block comprises a electrode array positioned in the trough, the second trough having an inlet for introducing a second liquid to the trough and an outlet for exiting the second liquid from the trough, wherein the first trough and the second trough are substantially coincident and form a channel when the first block is sealed to the second block; and

a porous material intermediate the first and second blocks, wherein the porous material divides the channel formed when the first block is sealed to the second block

into a first chamber and a second chamber, the second chamber including the electrode array.

19. The device of Claim 18 wherein the first and second chambers are in liquid communication when the chambers are filled with liquid.

20. The device of Claim 18 wherein the first chamber is in electrical communication with the electrode array when the chambers are filled with a conductive liquid.

21. The device of Claim 18 wherein the electrode array comprises a plurality of electrodes arranged linearly along the chamber length.

22. The device of Claim 21 wherein each electrode is individually controlled.

23. The device of Claim 21 wherein the electrodes are pin-shaped.

24. The device of Claim 21 wherein the electrodes are staple-shaped.

25. The device of Claim 18 wherein the electrode array generates an electric field gradient profile.

26. The device of Claim 25 wherein the electric field gradient profile can be dynamically controlled.

27. The device of Claim 18 wherein the electrode array comprises an electrode array positioned on a surface of the second chamber opposing the porous material.

28. The device of Claim 18 wherein the electrode array comprises a first electrode array and a second electrode array, the first and second arrays positioned on opposing surfaces of the second chamber adjacent the porous material.

29. The device of Claim 18 wherein the fluid medium comprises a chromatography support material

30. The device of Claim 18 wherein fluid medium comprises a fluid selected from the group consisting of a simple fluid, a complex fluid, and a polymer solution.

31. The device of Claim 18 wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.

32. The device of Claim 18 wherein the second chamber further comprises an electrode pair, wherein the electrodes of the pair are positioned adjacent opposing ends of the electrode array.

33. The device of Claim 18 further comprising a first conduit for introducing fluid media into the first chamber and a second conduit for exiting fluid media from the first chamber.

34. The device of Claim 18 wherein the first block is sealed to the second block through bolts passing through the blocks.

35. The device of Claim 18 further comprising a resilient sheet intermediate the second block and the porous material, wherein the sheet has an aperture coincident with the first and second troughs when the sheet is positioned intermediate the blocks

36. The device of Claim 18 further comprising a sealant intermediate the second block and the resilient sheet.

37. A method for focusing a charged solute in a fluid medium comprising:

introducing a charged solute into a fluid medium; and

applying an electric field gradient to the charged solute in the fluid medium to cause the charged solute to focus in a region of the medium, wherein the electric field gradient is generated by an electrode array.

38. The method for Claim 37 wherein the electric field gradient is dynamically controlled.

39. The method of Claim 37 wherein the electric field gradient is changed during the course of focusing the charged solute.

40. The method of Claim 37 wherein the fluid medium comprises a chromatography support material.

41. The method of Claim 37 wherein the fluid medium comprises a fluid selected from the group consisting of a simple fluid, a complex fluid, and a polymer solution.

42. The method of Claim 37 wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.

43. The method of Claim 37 wherein the charged solute comprises an uncharged material sorbed into a charged carrier.

44. The method of Claim 37 wherein the charged solute is a component of a charged solute mixture.

45. The method of Claim 37 wherein the electrode array comprises a plurality of electrodes arranged linearly along an axis parallel to direction of migration of the charged solute in the fluid medium.

46. The method of Claim 45 wherein each electrode is individually controlled.

47. A method for focusing a charged solute in a fluid medium comprising:

introducing a charged solute into a fluid medium, wherein the fluid medium is contained in a device comprising

a first chamber for receiving the fluid medium, the first chamber having an inlet for introducing a first liquid to the chamber and an outlet for exiting the first liquid from the chamber;

a second chamber comprising an electrode array, the second chamber having an inlet for introducing a second liquid to the chamber and an outlet for exiting the second liquid from the chamber; and

a porous material separating the first and second chambers; and

applying an electric field gradient to the charged solute in the fluid medium to cause the charged solute to focus in a region of the medium.

48. The method of Claim 47 wherein the first liquid is an eluant buffer.

49. The method of Claim 47 wherein the second liquid is a coolant buffer.

50. The method of Claim 47 wherein the first liquid is the same as the second liquid.

51. The method of Claim 47 wherein the first liquid is different from the second liquid.

52. A method for focusing a charged solute in a fluid medium comprising:

introducing a charged solute into a fluid medium, wherein the fluid medium is contained in a device comprising

a first block having a first trough machined therein for receiving a fluid medium, the first trough having an inlet for introducing a first liquid to the trough and an outlet for exiting the first liquid from the trough;

a second block having a second trough machined therein, wherein the second block comprises an electrode array positioned in the trough, the second trough having an inlet for introducing a second liquid to the trough and an outlet for exiting the second liquid from the trough, wherein the first trough and the second trough are substantially coincident and form a channel when the first block is sealed to the second block; and

a porous material intermediate the first and second blocks, wherein the porous material divides the channel formed when the first block is sealed to the second block into a first chamber and a second chamber, the second chamber including the electrode array; and

applying an electric field gradient to the charged solute in the fluid medium to cause the charged solute to focus in a region of the medium.

53. The method of Claim 52 wherein the first liquid is an eluant buffer.

54. The method of Claim 52 wherein the second liquid is a coolant buffer.

55. The method of Claim 52 wherein the first liquid is the same as the second liquid.

56. The method of Claim 52 wherein the first liquid is different from the second liquid.

57. A method for focusing a charged solute comprising:

introducing a charged solute into a fluid medium;

applying a hydrodynamic force to the solute in the fluid medium; and

opposing the hydrodynamic force with an electric field gradient to provide a solute focused in the fluid medium, wherein the electric field gradient is generated by an electrode array.

58. The method of Claim 57 wherein the electrode array comprises a plurality of electrodes arranged linearly along an axis parallel to direction of migration of the charged solute in the fluid medium.

59. The method of Claim 58 wherein each electrode is individually controlled.

60. The method for Claim 57 wherein the electric field gradient is dynamically controlled.

61. The method of Claim 57 wherein the electric field gradient is changed during the course of focusing the charged solute.

62. The method of Claim 57 wherein the fluid medium comprises a chromatography support material.

63. The method of Claim 57 wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.

64. A method for separating charged solutes comprising:

introducing a mixture of charged solutes into a fluid medium;

applying a hydrodynamic force to the solutes in the fluid medium; and

opposing the hydrodynamic force with an electric field gradient to separate the charged solutes in order of their electrophoretic mobilities, wherein the electric field gradient is generated by an electrode array.

65. The method of Claim 64 wherein each electrode is individually controlled.

66. The method for Claim 65 wherein the electric field gradient is dynamically controlled.

67. The method of Claim 64 wherein the electric field gradient is changed during the course of focusing the charged solute.

68. The method of Claim 64 wherein the fluid medium comprises a chromatography support material.

69. The method of Claim 64 wherein the charged solute comprises a biological solute selected from the group consisting of a protein, peptide, oligonucleotide, polynucleotide, and mixtures thereof.